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Potential Adverse Effects of Novel Drug Therapies in Multiple Myeloma Treatment

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Background

MM has undergone a surge in novel therapies to treat the disease over the past decade. It is vital to educate patients on the common adverse effects of these new treatments, as well as the self-management strategies that can be implemented to maintain and promote their quality of life.

Purpose

The purpose of this integrative literature review is to synthesize the potential side effects of the novel drug therapies to treat multiple myeloma and to develop evidence- based self-management techniques of the potential side effects to increase quality of life in the patient.

Learning Objectives

- 1. Identify the most common adverse effects associated with the novel therapies utilized to treat MM.
- 2. Develop an individualized evidence-based patient education plan based on potential adverse effects associated with novel therapies for MM.
- 3. List evidence-based self-management strategies that can ameliorate the adverse effects of novel therapies for MM.

Article Selection

- Articles were located utilizing combinations of the following Medical Subject Heading (MeSH) terms: multiple myeloma, novel therapy, adverse effects, and management
- Searches were conducted utilizing CIHNAL and PubMed, between 2003 and 2016, yielding 66 articles
- 36 articles were utilized, and papers that only focused on adverse effects of bisphosphonates and growth factors

Table 1. Common Adverse Effects of Novel Therapies for MM							
	TL	LL	PL	BZ/IZ	CZ	PS	DT
Cardio-pulmonary effects	Bradycardia		Shortness of breath	Hypotension	Shortness of breath Pneumonia Decreased Ejection fraction		pneumonia
Cutaneous rash	◆	◆	◆				
Fatigue	◆	◆	◆	◆	◆	◆	◆
GI adverse effects	Constipation	Diarrhea Constipation	Diarrhea Constipation	Nausea Vomiting Diarrhea	Nausea Vomiting Diarrhea	Diarrhea	
Infusion reaction							Dyspnea Cough
Myelosuppression, Anemia, neutropenia, thrombocytopenia	◆	◆	◆	◆	◆	◆	◆
Peripheral Neuropathy	◆		◆	◆	◆		
Renal Complications		◆					
Sedation	◆						
DVT or PE	◆	◆	◆				

Abbreviations:
TL= Thalidomide LL= Lenalidomide PL= Pomalidomide BZ/IZ= Bortezomib/Ixazomib
CZ= Carfilzomib PS= Panobinostat DT= Daratumumab

Results

- The final 36 articles used were categorized by level of evidence according to Melnyk and Fineout-Overholt's hierarchy of evidence (2011) to appraise the strength of evidence for reported self-management strategies.
- 1. The most common adverse effects are outlined in Table 1, organized by the drug studied in the articles.
 - 2. Majority (N=32 out of 36) of self-management techniques came from articles that were categorized as single descriptive studies, review papers, or expert opinions, all of which are Level 6 and 7 in the hierarchy of evidence
 - 3. These techniques include methods such as the use of antiemetic drugs, anti-diarrheal, laxative, blood transfusions, Erythrocyte Stimulating Agents, antibiotics, anti-virals, treatment dose adjustments and dose delays, and monitoring and immediate reporting of adverse events such as peripheral neuropathy to health care team
 - 4. The only self- management techniques supported by level 2 evidence are the use of aspirin, warfarin, and enoxaparin as VTE prophylaxis, indicating that randomized controlled trials had been performed

Conclusion

These findings underscore the need for randomized controlled trials to be conducted to assess the effectiveness of the self-management techniques to ameliorate adverse effects

There is a need for individualized, evidence-based education that can be given to patients to promote management of these effects

Treating MM has evolved greatly in the recent years, and management of adverse effects needs to catch up to promote patient well-being and quality of life

Reference:
Melnyk, B.M., & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing and healthcare: A guide to best practice* (2nd ed., p. 13). Philadelphia, PA: Lippincott Williams and Wilkins.